Assignment2

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```
#Loading the package
library(lpSolve)
```

```
## Warning: package 'lpSolve' was built under R version 4.1.3
```

```
#Objective function is to maximize
#The product can be made in three sizes - large, medium and small. Total net profit is denoted by "Z". I
f.obj <- c(420,360,300,
           420,360,300,
           420,360,300)
```

```
#Constraints
#The coefficients of the constraints can be written in the matrix form as:
f.con <- matrix(c(1,1,1,0,0,0,0,0,0,
                  0,0,0,1,1,1,0,0,0,
                  0,0,0,0,0,0,1,1,1,
                  20,15,12,0,0,0,0,0,0,
                  0,0,0,20,15,12,0,0,0,
                  0,0,0,0,0,0,20,15,12,
                  1,0,0,1,0,0,1,0,0,
                  0,1,0,0,1,0,0,1,0,
                  0,0,1,0,0,1,0,0,1), nrow = 9,byrow = TRUE)
```

```
#Set direction of the inequalities(as no.of rows = 9, we have set nine inequalities)
f.dir <- c("<=",
           "<=",
           "<=",
           "<=",
           "<=",
           "<=",
           "<=",
           "<=",
           "<=")
```

```
#Set the right hand side coefficients
#A. All the three plants have the excess capacity to produce 750,900 and 450 units per day
#B. All the three plants have 13000,12000 and 5000 square feet
#C. Sales forecast indicate that 900, 1200 and 750 unites would be sold per day by all the three plants
f.rhs<-c(750,
         900,
```

```
        450,
        13000,
        12000,
        5000,
        900,
        1200,
        750)
```

```
#Find the value of the objective function
lp("max",f.obj,f.con,f.dir,f.rhs)
```

```
## Success: the objective function is 708000
```

```
#Values of the variables
lp("max",f.obj,f.con,f.dir,f.rhs)$solution
```

```
## [1] 350.0000 400.0000   0.0000   0.0000 400.0000 500.0000   0.0000 133.3333
## [9] 250.0000
```